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(72) Inventor; and

Declaration under Rule 4.17:

(75) Inventor/Applicant (*for US only*): **PRIOR ALEIXO,**

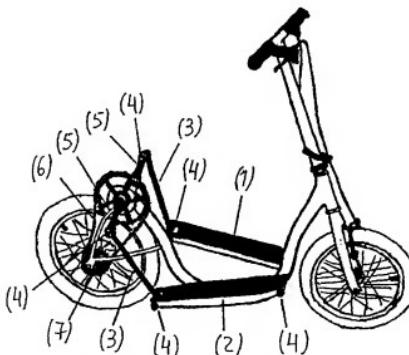
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[Continued on next page]

(54) Title: **STEP-BIKE**



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(57) **Abstract:** The invention of this Step-Bike moved by Horizontal Pedals with or without Velocities contain a pair of Horizontal Pedals (right and left) on which when one is up (1) the other is down (2) and the alternating propelling force of the right and left Legs of a Person on it, make force on two opposed Shafts (3) which connect by Liners (4) on a Pinion with right and left Crank (5) which through a Transmitting Shaft or Chain (6) connect a Pinion fixed on a Back Hub (7) that may include, on a velocities option, Internal Gears (from 3 to 10) and Internal Brakes like Shimano Nexus Hub or equivalent - this eliminates the need of external Gears and Brakes. Complementing this inventive part, the Step-Bike contain a Steel or Aluminium Tubular Frame with Fork, Direction, Handle-bar, Brakes on Fork, Brake Cable and Front Brake Lever, Revo-Shift Lever (in case of Gears), a Front Wheel and a Back Wheel.



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DESCRIPTION**STEP-BIKE**

The present invention refers to a Step-Bike moved by Horizontal Pedals with or without Velocities.

In general any Mini-Scooter is composed of two wheels , a platform to put the foots , a handle-bar to put the hands and a back foot brake.

This traditional Mini-Scooter is moved by a Person impulsion , putting one feet on platform and another on floor and have two disadvantages:

- on meadle and big distances it is overtired
- it is very unbalanced.

This invention have the solutions to that limitations.

Indeed , the Horizontal Pedals Step-Bike we invented have the following advantages:

- 1° - a Person can Step kilometres without fatigue
- 2° - it is not unbalanced
- 3° - it is similar to the utility of a bicycle.

The invention of this Step-Bike moved by Horizontal Pedals with or without Velocities contain a pair of Horizontal Pedals (right and left) on which when one is up (1) the other is down (2) and the alternating propelling force of the right and left Legs of a Person on it , make force on two opposed Shafts (3) which connect by Liners (4) on a Pinion with right and left Crank (5) which through a Transmitting Shaft or Chain (6) connect on a Pinion fixed on a Back Hub (7) that may include, on a velocities option, Internal Gears (from 3 to 10) and Internal Brakes , like Shimano Nexus Hub or equivalent – this eliminates the needing of external Gears and Brakes.

When a Pedal is up (1) the other is down (2) and with the back Wheel movement they alternate. Then the continuous Step-Bike movement is made by the alternating propelling force on Pedals of a Person Legs.

Like this a Person may Step kilometres without fatigue and stopping.

And in case of having Velocities, we can put a low or a high speed for a easily Step.

Complementing this inventive part , the Step-Bike contain a Steel or Aluminium Tubular Frame with Fork, Direction, Handle-bar , Brakes on Fork, Brake Cable and Front Brake Lever, Revo-Shift Lever (in case of Gears) , a Front Wheel and a Back Wheel.

For the construction of this Step-Bike we resolved some Technical Problems:

- A) the Horizontal Pedals setting problem
- B) the Horizontal Pedals size problem in such a way that maximize the utilization and minimize the Legs stress
- C) the Shafts size in such a way that do not make the anti-pedal effect
- D) the Liners , Pinion , Cranks , Chain or Transmitting Shaft collocation problem
- E) the back Hub collocation , running well with the Chain or Transmitting Shaft

So, a completely different system from the traditional Mini-Scooter.

This Step-Bike have completely different materials and we resolved various technical problems to make it.

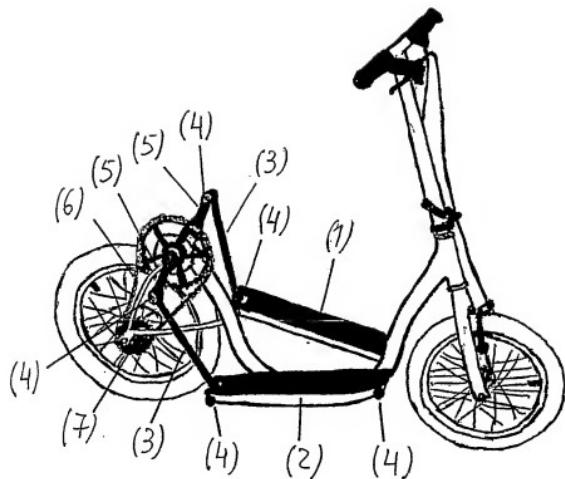
CLAIMS

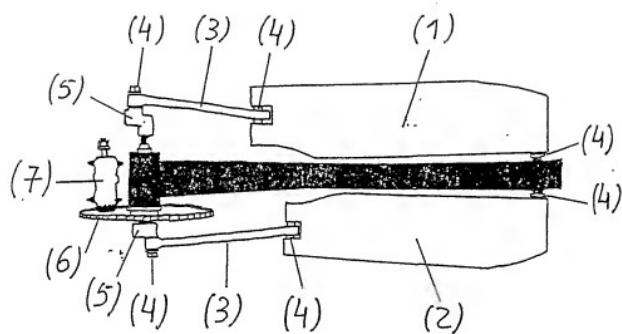
1

A Step-Bike moved by Horizontal Pedals with or without Velocities characterized by the Legs of a Person making propelling force on a pair of Horizontal Pedals (right and left) on which when one is up (1) the other is down (2) they make force on two opposed Shafts (3) which connect by Liners (4) on a Pinion with right and left Crank (5) which through a Transmitting Shaft or Chain (6) connect on a Pinion fixed on a Back Hub (7) that may include, on a velocities option, Internal Gears (from 3 to 10) and Internal Brakes like Shimano Nexus Hub or equivalent – this eliminates the needing of external Gears and Brakes.

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A Step-Bike moved by Horizontal Pedals according to Claim I characterized by being complemented with a Steel or Aluminium Tubular Frame with Fork, Direction, Handlebar , Brakes on Fork, Brake Cable and Front Brake Lever, Revo-Shift Lever (in case of Gears), a Front Wheel and a Back Wheel .





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SUBSTITUTE SHEET (RULE 26)

INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER
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According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
 IPC 7 B62M B62K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	GB 2 345 478 A (DOUGLAS) 12 July 2000 (2000-07-12) the whole document —	1,2
A	US 4 828 284 A (SANDGREN JOHN A) 9 May 1989 (1989-05-09) the whole document —	2
A	US 2 481 683 A (JIRI POLACEK) 13 September 1949 (1949-09-13) the whole document —	2
A	US 5 110 148 A (STIENBARGER LEROY ET AL) 5 May 1992 (1992-05-05) the whole document — —/—	1

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Patent family members are listed in annex.

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- *P* document published prior to the international filing date but later than the priority date claimed

T later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

X document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

Y document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

& document member of the same patent family

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C(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	FR 678 505 A (DUCOMMUN EMILE-HENRI-CAMILLE) 25 March 1930 (1930-03-25) the whole document _____	1
A	DE 296 02 729 U (MUNDORF JOHN) 19 June 1997 (1997-06-19) the whole document _____	1

INTERNATIONAL SEARCH REPORT

Information on patent family members

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Patent document cited in search report		Publication date		Patent family member(s)		Publication date
GB 2345478	A	12-07-2000		NONE		
US 4828284	A	09-05-1989		NONE		
US 2481683	A	13-09-1949		NONE		
US 5110148	A	05-05-1992		NONE		
FR 678505	A	25-03-1930		NONE		
DE 29602729	U	19-06-1997	DE	29602729 U1		19-06-1997

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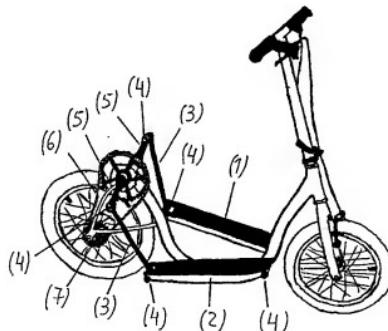
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[Continued on next page]

(54) Title: STEP-BIKE



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AMENDED CLAIMS

[received by the International Bureau on 4 April 2002 (04.04.02);
original claims 1 and 2 amended; new claims 3-8 added; (1 page)]

1. A Step-Bike moved by Horizontal Pedals with or without Velocities characterized by the Legs of a Person when making propelling force on a pair of Horizontal Pedals (1 and 2) they propels the Rear Wheel by a Gear System.
2. A Step-Bike as claimed in claim 1 wherein the pair of Horizontal Pedals (1 and 2) raise and lower in a partial arc the axis of which (4) is on or near the centre of the Front Wheel.
3. A Step-Bike as claimed in claim 1 and 2 wherein the rear (back) part of each Horizontal Pedal (1 and 2) is attached to a Rod (3) by Liners (4).
4. A Step-Bike as claimed in claim 1 and 3 wherein each Rod (3) is situated on the upside of each Horizontal Pedal (1 and 2).
5. A Step-Bike as claimed in claim 1 and 4 wherein each Rod (3) is connected by Liners (4) on a Pinion with right and left Crank (5) that point in opposite directions and which are shorter than the Rods (3).
6. A Step-Bike as claimed in claim 1 and 5 wherein the Pinion with right and left Crank (5) is situated on the upside of the Rear Wheel and on the upside of the Horizontal Pedals (1 and 2).
7. A Step-Bike as claimed in claim 1 and 6 wherein through a Transmitting Shaft or Chain (6) the Pinion with right and left Crank (5) connect on a Pinion fixed on a back Hub (7) of the Rear Wheel that may include , on a Velocities option, internal Gears (from 3 to 10) and internal Brakes like Shimano Nexus Hub or equivalent (this eliminates the needing of external Gears and Brakes).
8. A Step-Bike as claimed in claim 1 where it is complemented with a Steel or Aluminium Tubular Frame with Fork, Direction, Handle-Bar, Brakes, Brakes Levers,Revo-Shift Lever (in Velocities case), a Front Wheel and a Rear Wheel.